SECTION 10 CONTENTS

AGRICULTURAL WATER

As the Jordan River Basin population has grown, many of the agricultural areas have been converted to residential or commercial developments, significantly reducing the total irrigated acreage during the past 30 years.

10.1 Introduction

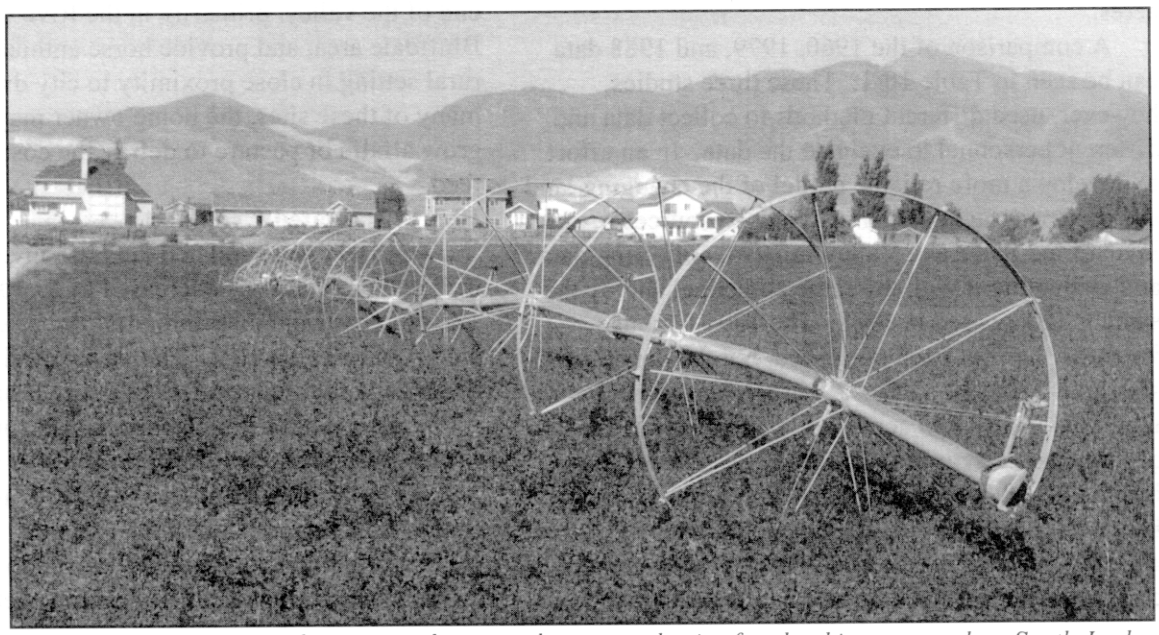
This section describes the agricultural water use in the Jordan River Basin. It also identifies and discusses key issues associated with agricultural water conservation. Also, some proposed solutions to the problems and needs of the area are presented.

10.2 Background

Historically, agriculture has been an important industry in the Jordan River Basin. Today, however, the basin has just over 43,800 acres of cultivated lands, of which approximately 25,300 acres are irrigated. Although agriculture continues to be an important part of the overall state economy, urbanization makes it's role increasingly less significant in the socio-economic development. Still, agricultural water use plays an important role in overall water planning in terms of quantity and quality.

In recent decades, the Salt Lake Valley has experienced widespread growth. Much of the residential expansion has been in what was predominately agricultural areas in the western, south-central, and southeast portions of the valley, primarily the West Valley City, West Jordan, South Jordan, Draper, Riverton and Bluffdale areas with considerable growth in the Sandy area. These are lands that have been served by canals on the west and east side of the valley.

Salt Lake County's master plan, titled *Salt Lake Valley 1965,* identified agricultural land use as a valuable asset to the valley's socio-economic welfare. The plan called for 80 square miles (51,200 acres) of highly productive farmland to be held in reserve against the encroachment of urban and commercial development. That county plan, however, was not mandatory but advisory. As a result, no steps were



Population growth encroaches on productive farmland in areas such as South Jordan

taken to insure the 51,200 acres of agricultural land were preserved. Although 43,800 acres of agricultural lands remain in the valley, present land use trends clearly indicate a continuing conversion of agricultural lands, primarily irrigated lands, to urban and commercial developments. Refer to Table 6-3 for the basin's largest irrigation companies and acreages.

10.3 Agricultural Lands

Salt Lake County's master plan, published in March of 1965 and using 1960 land use data, identified 93,000 acres of total agricultural lands and 57,000 acres of urban lands. The plan does not identify how much of the agricultural ground was irrigated or dry farmed.

A study for the Division of Water Resources, titled *Land Use Inventory of Salt Lake County 1982*, used 1979 infrared aerial photography to map various land use types. It identified 94,500 acres of urban ground, 51,200 acres of irrigated lands, and 27,400 acres of dry farm land. The total agricultural ground was 78,600 acres.

The Division of Water Resources mapped the Salt Lake Valley in 1988 from low altitude photography with field verification. The results of that inventory were published in March of 1994, titled *Water-Related Land Use Inventories - Lower Jordan River.* The study identified 29,800 acres of irrigated ground, 23,100 acres of dry cropland for a total of agricultural land of 52,900. Urban land had increased to 116,100 acres.

A comparison of the 1960, 1979, and 1988 data can be seen in Table 10-1. These three studies, however, used different methods to collect data and different personnel to evaluate the data. In an effort to develop a more reliable model of the changing land use patterns, the Division of Water Resources re-inventoried Salt Lake Valley in 1994, collecting data and evaluating it with the same personnel and by the same methods used in 1988. The 1994 land use inventory has not been published, but the data (also shown in Table 10-1) showed urban lands had increased to 127,300 acres while irrigated farm ground had decreased to 25,300 acres and dry farm land had decreased to 18,600 acres. Total agricultural land was 43,800 acres. The changing land use patterns reflected by the 1988 and 1994 inventories confirmed the trends indicated by the earlier studies.

Projected land use figures in Table 10-1 for the year 2020 were developed based upon the pattern established by the four studies. Land use data presented in Table 10-1 are also graphically illustrated in Figure 10-1. Total agricultural lands have diminished from 93,000 acres in 1960 to 43,800 acres in 1994, and are projected to decrease to about 15,000 acres by the year 2020. Over the same period of time, urban lands have increased from 57,000 acres in 1960 to 127,300 acres by 1994. At that pace, urban lands will increase to over 175,000 acres by the year 2020.

Despite the current trend of agricultural lands being converted to residential and commercial uses, a number of successful farming operations continue to flourish amidst the growing urban community. In the 1950s, a "nuisance" statute was passed. That law allows a resident, using his land for the same purpose for which it had been used historically, to remain on his land even though the uses of the land and population around have changed. This law allows the "urban" farmers to continue to operate their business. In the end, however, the "urban" farmer may quite possibly be doomed to extinction. The residential and commercial growth will ultimately escalate land and water values to the point that selling out to developers may prove to be the most financially prudent thing to do.

One exception to the growing urban trend is the creation of relatively small 5- to 10-acre "ranchettes." These home developments are popular in the southern end of the valley, primarily in the Riverton and Bluffdale area, and provide horse enthusiasts with a rural setting in close proximity to city dwelling. At many of these sites, the home owner may continue to grow alfalfa or pasture to defray the cost of horse feed.

10.3.1 Irrigated Cropland

The 1994 water-related land use inventory shows irrigated cropland has decreased to 25,300 acres. The crop type and distribution of the irrigated crops are given in Table 10-2. The vast majority of irrigated lands are used for the production of feed for cattle. Irrigated pasture lands account for 36 percent, while alfalfa makes up 27 percent of the irrigated ground. Various grains, corn, hay, idle and fallow ground make up much of what remains. Less than 2 percent of the irrigated ground is used to produce higher cash crops such as fruits and vegetables.

Table 10-1
URBAN/AGRICULTURAL LAND USE TRENDS

Land Use	1960[a]	1979[b]	1988[c] (acres)	1994[d]	2020[e]
Irrigated lands	-	51,200	29,800	25,300	10,000
Dry farm lands	-	27,400	23,100	18,600	5,000
Total agricultural lands	93,000	78,600	52,900	43,800	15,000
Urban Lands	57,000	94,500	116,100	127,300	175,000

a. Taken from Salt Lake County's master plan published in March 1965, titled *Salt Lake Valley 1985.*
b. *Land Use Inventory of Salt Lake County 1982*, by Kevin Price, Reynold Willie, and Merrill Ridd. (1979 color infrared aerial photography used)
c. *Water-Related Land Use Inventories - Lower Jordan River Area,* Utah Division of Water Resources, March 1994
d. Unpublished *Water-Related Land Use Inventories - Lower Jordan River Basin*, Utah Division of Water Resources,
e. Projected from current trends.

Figure 10-1
SALT LAKE COUNTY LAND USE

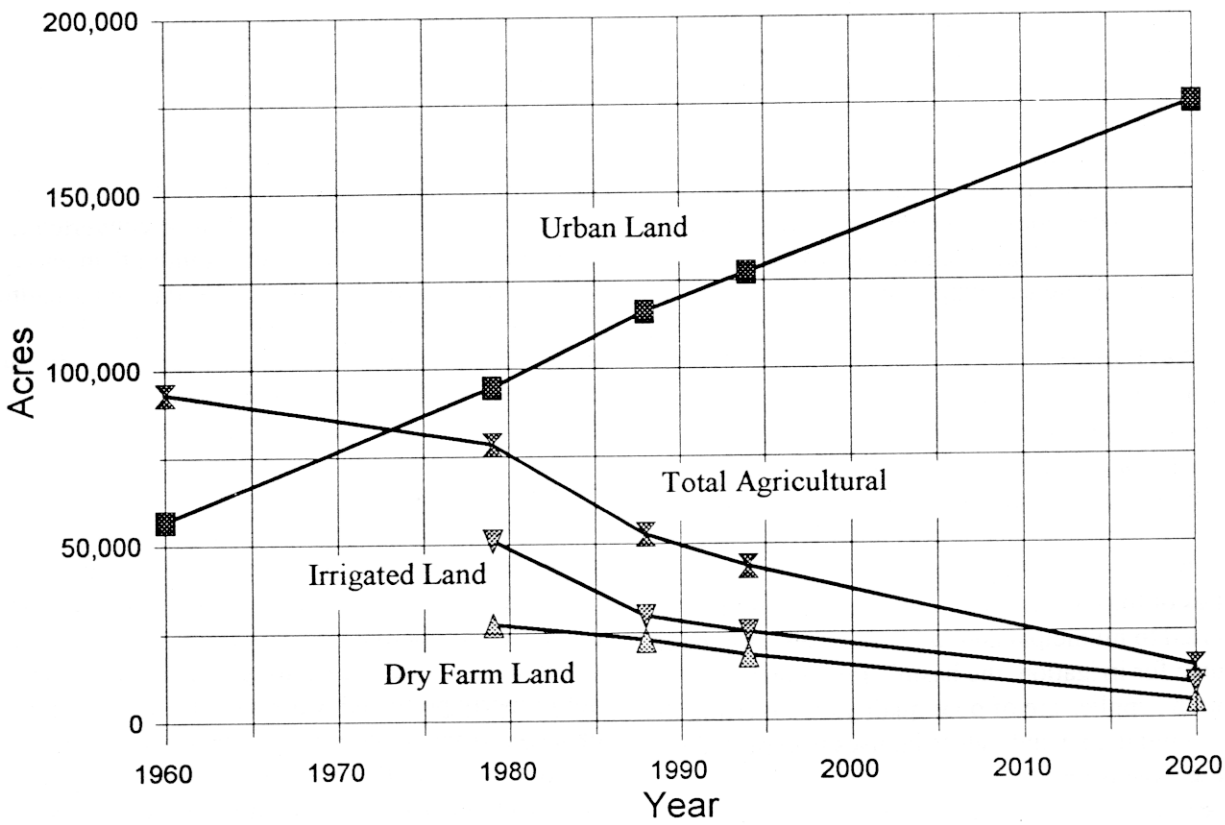


Table 10-2
IRRIGATED LAND BY CROP
Jordan River Basin

Crop Type	1994 acres
Alfalfa	6,858
Irrigated pasture	9,016
Grain	2,267
Corn	1,705
Grass/turf	115
Grass/hay	240
Idle	4,156
Fallow	561
Vegetables	122
Fruits	90
Beans	103
Potatoes	5
Other horticulture	77
Total irrigated acres	25,316

Water-Related Land Use Inventories - Lower Jordan River Area, Utah Division of Water Resources, March 1994, unpublished.

10.3.2 Dry Cropland

Over 40 percent of the agricultural ground is dry cropland. The majority of the dry cropland is located above the west side canals in the southwest portion of the valley, primarily the South Jordan and Riverton areas, extending west to Copperton and north to the Kearns and Magna area. As with the irrigated lands, dry croplands are primarily used for the production of feed grains With the ever-growing reduction in irrigated lands and the increasing availability of agricultural water, these dry croplands have potential for conversion to irrigated lands, the primary constraint being the pumping cost.

10.4 Agricultural Water Problems and Needs

Although agriculture continues to use a significant portion of the total water supply, farms and ranches are steadily being replaced by residential and commercial developments. The resulting loss of irrigated agricultural land is also the driving force currently changing basic water use. Irrigation supplies of high water quality have already been converted to municipal and industrial uses. Although adequate for irrigation, the basin's remaining irrigation supplies are of poor quality. Converting the water to municipal and industrial uses is expected to be quite expensive.

Farming, as an occupation, has undergone fundamental changes in recent years. This has resulted in many farmers leaving, or relying on off-farm employment to supplement their incomes. On the whole, however, these changes are a result of national and international political and economic restructuring.

10.4.1 Irrigation Water

Water is diverted from the Jordan River to the east and west sides of the valley through a series of parallel canals. The west side of the valley is served primarily by a system of four canals. From the uppermost to the lowest these are Welby Canal (starting at elevation 4700), Utah Lake Distributing Canal (4575), Utah and Salt Lake Canal (4480), and the South Jordan Canal (4425). The east side of the valley is primarily served by a system of three parallel canals: Draper Irrigation Company Canal (starting at elevation 4560), East Jordan Canal (elevation 4480), and Jordan and Salt Lake Canal (4425). See Figure 3-2 for canal locations. These parallel distribution systems are very complex with numerous inter-canal exchanges. Such a system allows for efficient use of water since surface water runoff from higher agricultural areas can be collected and distributed by lower canals.

Virtually all of the surface water supplies used for agriculture come from the Jordan River. The cost of treating Jordan River/Utah Lake water to drinking water standards is currently prohibitive. Consequently, the quantity and quality of water available for agriculture is not a problem. With large tracts of formerly irrigated lands now converted to residential developments, there is more than enough water available for the lands remaining in agricultural production. The average annual diversion for irrigated cropland is 143,000 acre-feet. In 1995, an estimated 126,000 acre-feet of water was diverted to irrigate about 25,300 acres of cropland.

10.4.2 Erosion

Watershed management is the protection, conservation and use of all the natural resources of a watershed in such a way as to keep the soil mantle in place and productive. It also assures water yield and water quality meet the existing and potential uses. If not properly protected, watershed lands are readily damaged from erosion, floods, sediment and fire.

In the Jordan River Basin, however, the primary concern with erosion is one of water quality. With the rapid conversion of agricultural lands to residential and commercial uses, the preservation of

topsoil is probably not as high a priority as it would be in more strictly agricultural communities. Moreover, because the valley is not heavily grazed, and for the most part the riparian areas along the Jordan Rivers and its tributary streams are in fair condition, erosion is not a big problem. A few localized areas where erosion problems exist are primarily a result of dry-farm activities. These areas would benefit from the development of a watershed management plan. The following are some of the treatment measures that can be used in the Jordan River Basin to keep, protect and enhance the watershed:

- Wildlife management.
- Vegetation improvement on cropland, rangeland, pastures, forest land, pasture land, wetlands, riparian zones and other areas.
- Conservation tillage protection on cropland in the lower watershed coordinated with grazing management. Improved cropping sequences, pasture and hay land management, and proved irrigation systems and management are important.
- Structural measures, such as contour trenching, debris basins, gully control, and stream channel stabilization, all in conjunction with vegetation improvement.
- Spring areas protected from wildlife by fencing. Watering facilities provided outside the fenced areas.

10.5 Conservation and Development Alternatives

A number of water conservation practices could be employed to increase water use efficiencies. These include improving diversion structures, lining high seepage loss canal sections, improved management and converting from flood irrigation to sprinkler or trickle applications. There is, however, no incentive to conserve Jordan River irrigation water. There is sufficient irrigation water for the existing demand and there is no foreseeable need for additional agricultural water. Also, at the present time the cost of treating Jordan River water precludes its use for municipal water. ■